

FIG. 2

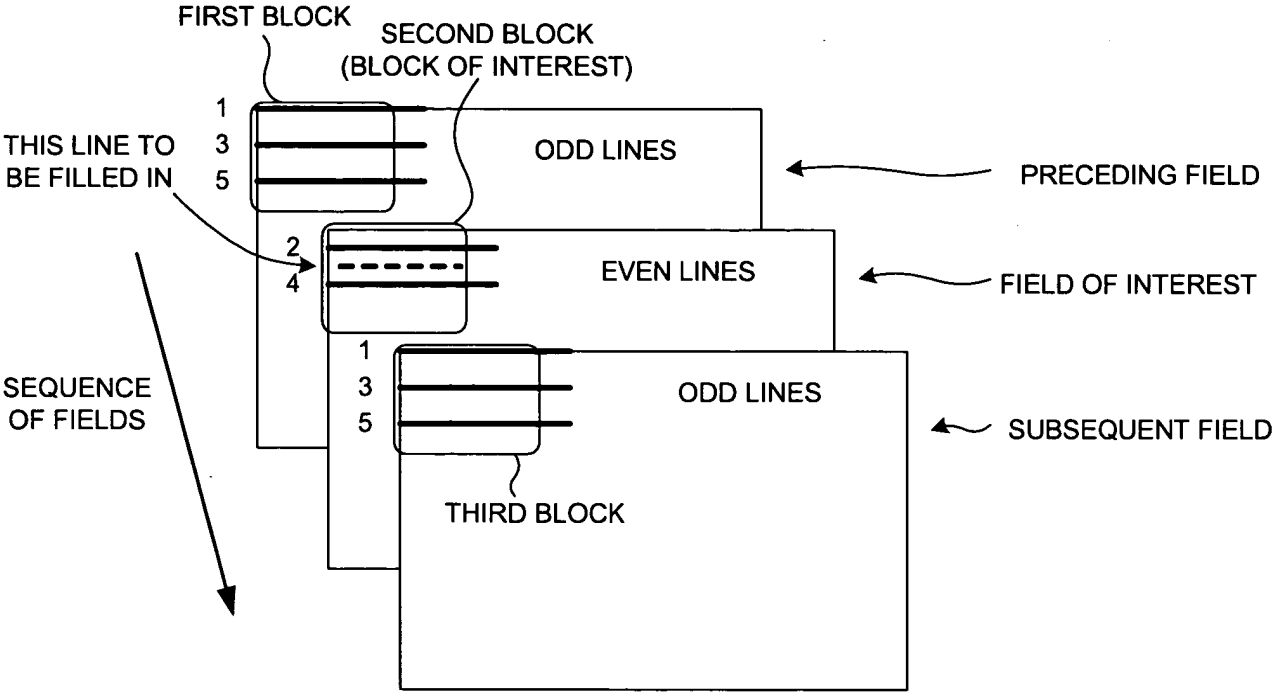


FIG. 3

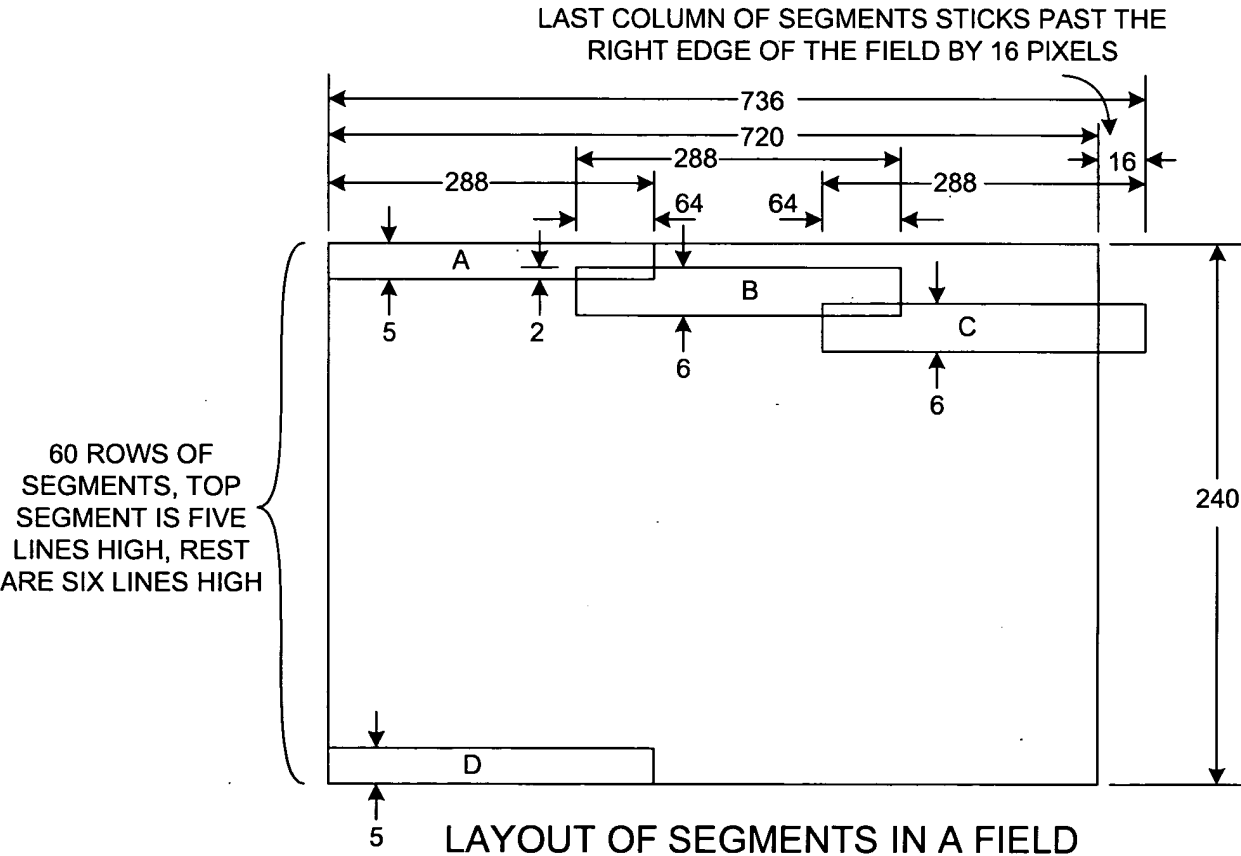
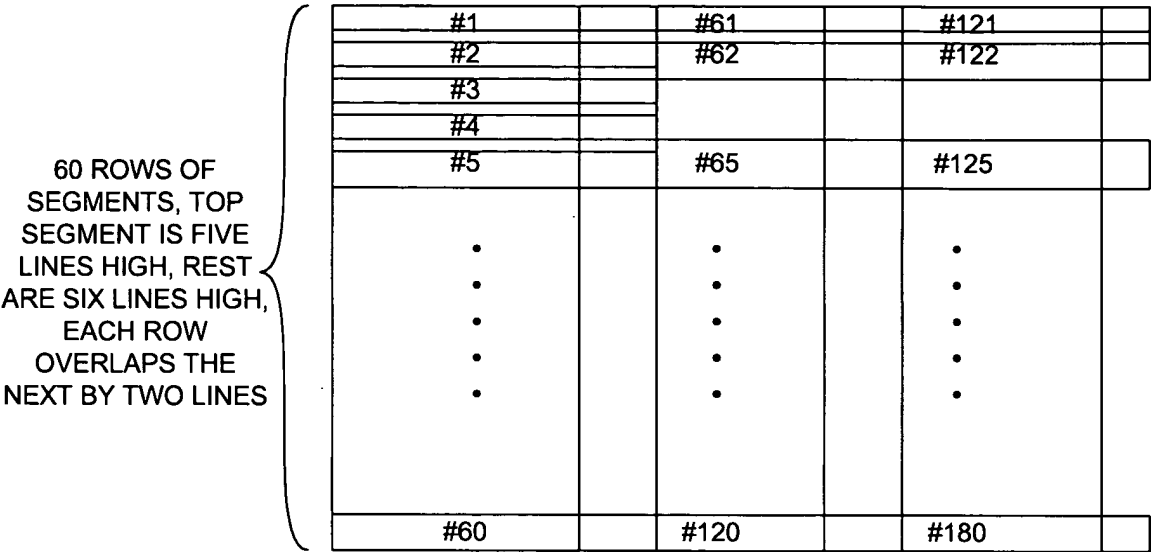
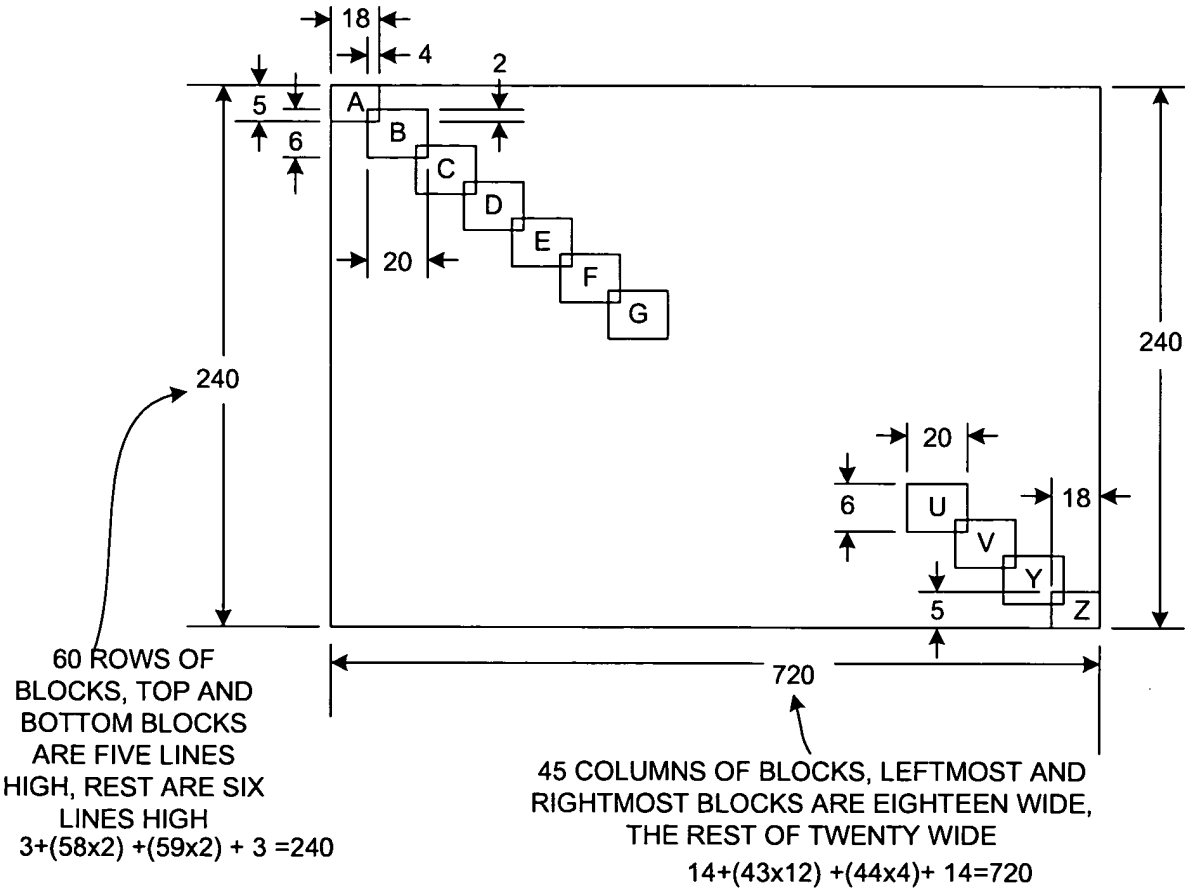


FIG. 4



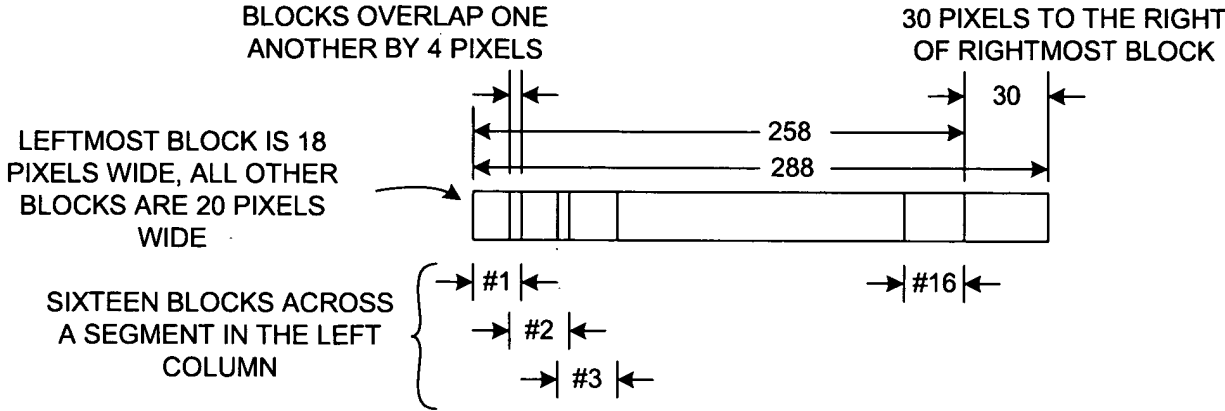
SEGMENT LOADING SEQUENCE

FIG. 5



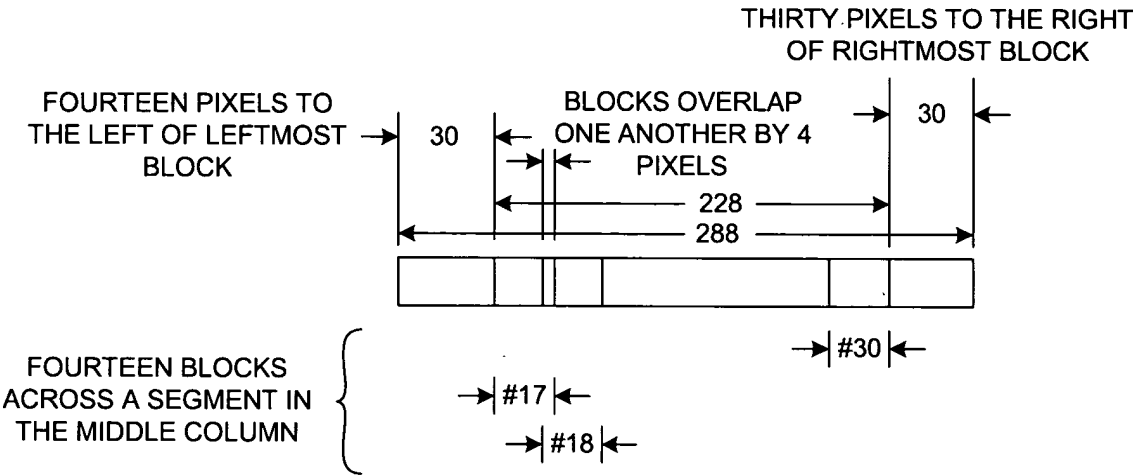
LAYOUT OF BLOCKS IN A FIELD

FIG. 6



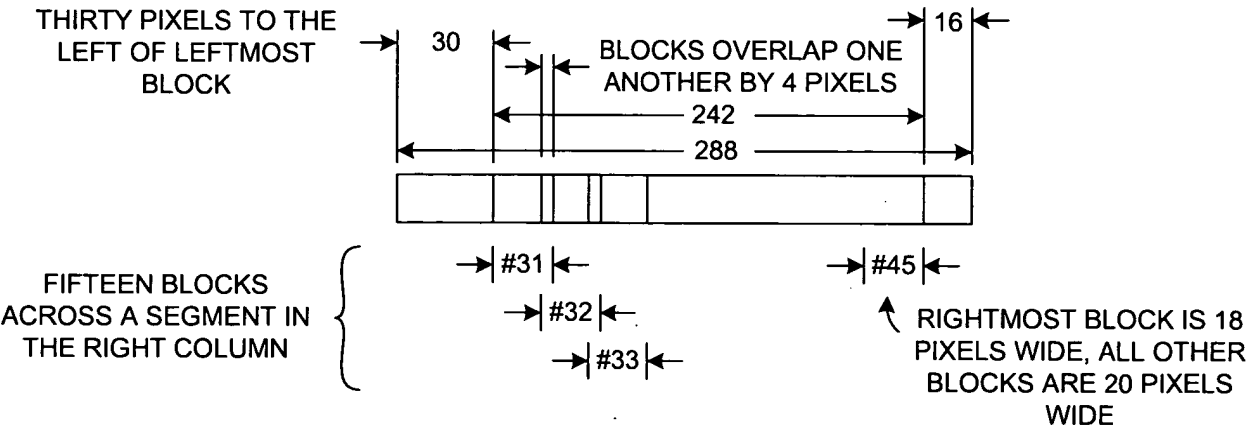
BLOCKS IN A SEGMENT IN THE LEFT COLUMN

FIG. 7A



BLOCKS IN A SEGMENT IN THE MIDDLE COLUMN

FIG. 7B



BLOCKS IN A SEGMENT IN THE RIGHT COLUMN

FIG. 7C

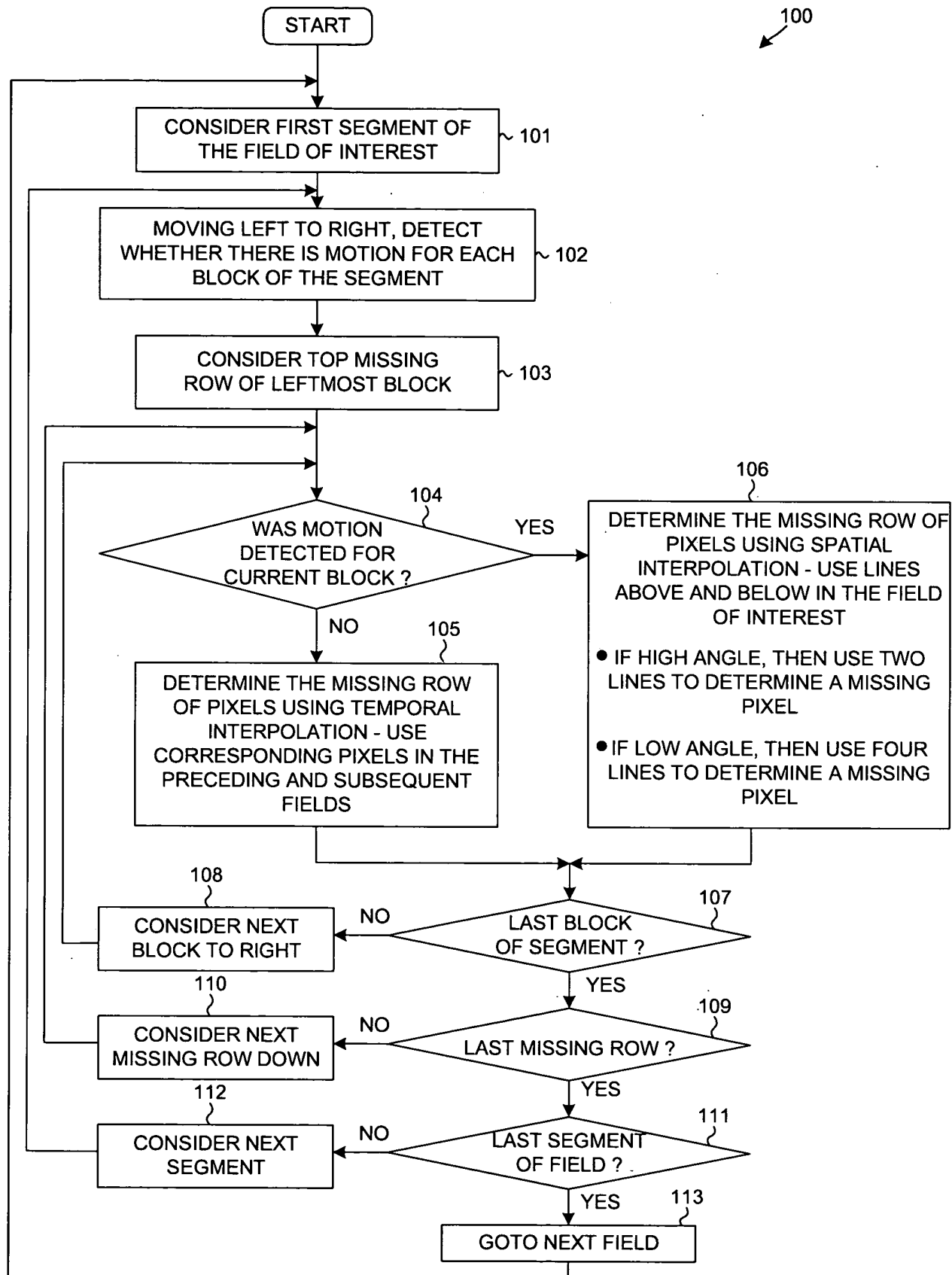


FIG. 8

IN A BLOCK:

$P_{i,j}$  IS A LUMINANCE VALUE AT THE  $i$ th ROW AND  $j$ th COLUMN IN A BLOCK OF FIELD (t-1)

$Q_{i,j}$  IS A LUMINANCE VALUE AT THE  $i$ th ROW AND  $j$ th COLUMN IN THE BLOCK AT THE SAME POSITION OF FIELD (t+1)

$i \in [0, \text{BLOCK\_WIDTH}]$

$j \in [0, \text{BLOCK\_HEIGHT}]$

$$\text{SUM} = \sum_{j=0}^{\text{BLOCK\_HEIGHT} - 1} \sum_{i=0}^{\text{BLOCK\_WIDTH} - 1} \frac{(P_{i,j} + Q_{i,j})}{2}$$

$$\text{DIFF} = \sum_{j=0}^{\text{BLOCK\_HEIGHT}} \sum_{i=0}^{\text{BLOCK\_WIDTH}} |P_{i,j} - Q_{i,j}|$$

IF ( DIFF > SUM \* THRESHOLD\_RATIO )

THEN { THERE IS MOTION ;

MOTION\_SIGNAL = 1 ;

USE SPATIAL INTERPOLATION RESULTS ; }

ELSE { THERE IS NO MOTION ;

MOTION\_SIGNAL = 0 ;

INTERPOLATE USING THE AVERAGE OF FIELD(t-1) AND FIELD(t+1) ; }

FINAL\_RESULT = MOTION\_SIGNAL | CORRESPONDENT MOTION HISTORY BIT ;

CORRESPONDENT MOTION HISTORY BIT = MOTION\_SIGNAL ;

BLOCK-BASED MOTION DETECTION

FIG. 9

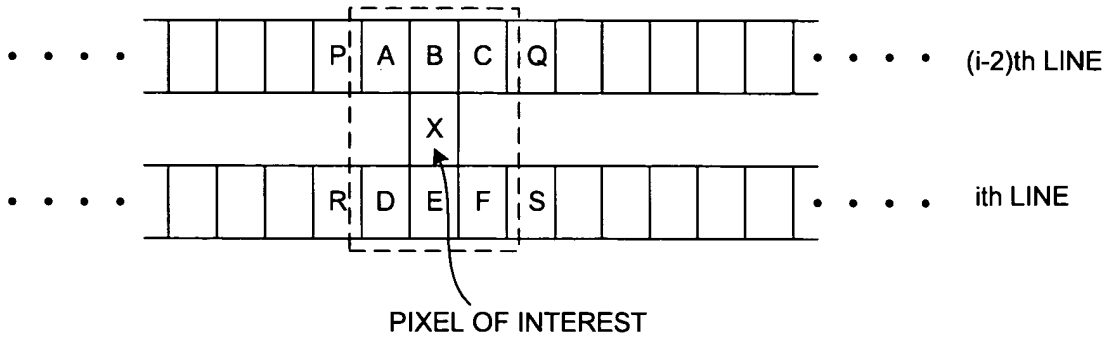


FIG. 10

$$\text{VERT\_GRAD} = \frac{A - D + 2 * (B - E) + C - F}{4}$$

$$\text{HORI\_GRAD} = \frac{A - C + D - F}{2}$$

IF  $(| \text{VERT\_GRAD} | + | \text{HORI\_GRAD} | < \text{THRESHOLD})$  THEN

$$X_L = \frac{B + E}{2} ; \quad X_C = \frac{B + E}{2}$$

ELSE IF  $\left\{ \left\{ \frac{| \text{VERT\_GRAD} |}{| \text{HORI\_GRAD} |} > \tan(68^\circ) \right\} \text{ OR } \left\{ \frac{| \text{VERT\_GRAD} |}{| \text{HORI\_GRAD} |} < \tan(23^\circ) \right\} \right\}$  THEN

$$X_L = \frac{B + E}{2} , \quad X_C = \frac{B + E}{2} ;$$

ELSE IF  $\left\{ \frac{\text{VERT\_GRAD}}{\text{HORI\_GRAD}} < 0 \right\}$  THEN (LEFT TILT):

$$X_L = \frac{A + F}{2} , \quad X_C = \frac{P + S}{2} ;$$

ELSE (RIGHT TILT):

$$X_L = \frac{D + C}{2} , \quad X_C = \frac{Q + R}{2} ;$$

WHERE

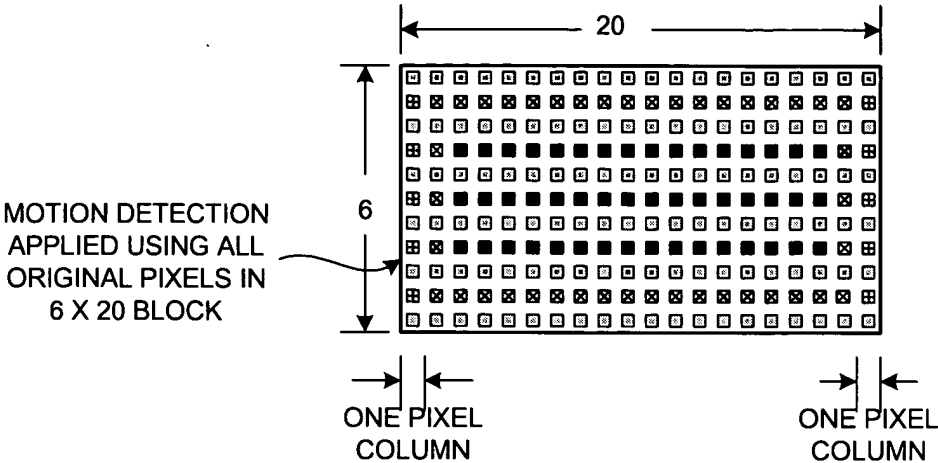
$X_L$  IS LUMINANCE

$X_C$  IS CHROMINANCE

HIGH ANGLE SPATIAL INTERPOLATION

FIG. 11





SYMBOL	DESCRIPTION
⊠	PIXEL TO BE GENERATED - HIGH ANGLE SPATIAL INTERPOLATION CAN BE APPLIED, BUT LOW ANGLE SPATIAL INTERPOLATION CANNOT.
⊞	PIXEL TO BE GENERATED - NEITHER HIGH ANGLE NOR LOW ANGLE SPATIAL INTERPOLATION CAN BE APPLIED - USE TEMPORAL INTERPOLATION.
■	PIXEL TO BE GENERATED - LOW OR HIGH ANGLE SPATIAL INTERPOLATION CAN BE APPLIED.
□	ORIGINAL PIXEL.

FIG. 12